



Soundings Newsletter

#MyCauseMyCleats Highlights AHRF

More than 500 players wore custom-designed cleats in Week 13 (December 1-2) for the NFL's #MyCauseMyCleats campaign.

Tampa Bay Buccaneer Mike Leidtke chose to highlight the American Hearing Research Foundation (AHRF) for its work with Meniere's disease research. His cleats also honor his wife who is dealing with Meniere's disease symptoms.



Mike explained to AHRF, "Noelle was diagnosed with Meniere's in 2015 when she was 23. Her attacks started during my rookie season, when she was living back home in Illinois and I had recently moved to Florida. I knew she was sick and having issues but I had no clue of the extent until she came to visit me. The first time I witnessed an attack I was terrified. She was so dizzy she couldn't lift her head off the floor and she was violently throwing up. Watching and feeling so helpless knowing I couldn't do much other than try to comfort her was really tough.

When she went home she was sick for about three months, going through trips to the ER, scans and tests, and losing 20 pounds from not being able to hold food down. She was put on a low sodium diet and once her body seemed to correct she was doing really well. When I came home last offseason she began to have attacks again. Luckily I have a lot of free time in the offseason so I was able to stay home and take care of her. Noelle is a labor and delivery nurse and a lot of days I had to go pick her up from work because she would have a Meniere's attack. Her coworkers would have to wheel her out of the hospital in a wheel chair with a vomit bag. It adds a lot of stress to our lives; I constantly worry about her getting sick when she's out alone.

"Noelle's doctors once suggested pharmaceutical companies don't want to invest in finding a solution to Meniere's because it's wouldn't be profitable enough. That's why I wanted to bring as much attention to Meniere's as possible. Noelle and I are hoping that someday soon medicines and treatments can become available to solve the issue rather than just try to dull the severity of the symptoms. We understand how awful Meniere's is and we want others affected by Meniere's to understand they are not alone."



AHRF TO FUND 10 PROJECTS IN 2019

The American Hearing Research Foundation will fund 10 studies in 2019, for a total of \$252,900. Grant recipients will examine diverse topics including the societal cost of hearing loss, deficits in the auditory cortex associated with autism, designing a way to deliver hearing-sparing drugs to the inner ear, using a new gene therapy to treat genetic hearing loss, ways to use current testing to identify those at risk for falls, and changes in the brain that occur after noise exposure. Award recipients are listed on page 2. **Congratulations!**

Congratulations to 2019 AHRF Grant Recipients!



The following investigators will receive research grants from AHRF in 2019.

American Cochlear Implant Alliance/AHRF Partner Grant (\$25,000)

- Alexandra L. Quittner, PhD; Ivette Cejas, PhD; Laurie Eisenberg, PhD; Nicklaus Children's Research Institute, FL; *Reductions in Societal Costs and Burden for those with Severe to Profound Hearing Loss: Impact of Pediatric Cochlear Implantation*

AHRF & ACI Alliance Co-Fund Grant

AHRF President Alan Micco, MD, notes, "This will be a large scale effort requiring a multi-disciplinary team. Both organizations are excited to provide seed money."

AHRF Regular Grants (\$20,000 to \$50,000)

- Charles Askew, PhD; Chengwen Li, MD, PhD; University of North Carolina at Chapel Hill; *Development of Adeno-Associated Vectors for Genetic Treatment of Inherited Hearing Loss*
- Christopher G. Clinard, PhD; Erin G. Piker, AuD, PhD; James Madison University, VA; *A more sensitive measure of age-related changes in the vestibular system: Vestibular evoked myogenic potentials (VEMPs) elicited by amplitude-modulated tones*
- Larry Hoffman, PhD; Ashley Kita, MD; Johnny Saldate, PhD; Geffen School of Medicine at UCLA; *Designing a drug-eluting scaffold for othotherapeutics*
- Tessa-Jonne F. Ropp, PhD; University of North Carolina at Chapel Hill; *Exploring Deficits in the Auditory Cortex Associated with Autism*
- Marina Augusto Silveira, PhD; University of Michigan; *Neuropeptide Y as a Neuro-modulator of Noise-Induced Hyperexcitability in the Inferior Colliculus*
- Xiaodong Tan, PhD; Northwestern University, IL; *Protective Effect of Honokiol in Noise-Induced Hearing Loss*

Bernard & Lottie Drazin Memorial Grants for Otolaryngology Residents (\$1,000)

- Erin R. Cohen, MD; University of Miami Miller School of Medicine; *Radiation Toxicity and Biology in Merlin-Deficient and Normal Schwann Cells in Vitro*
- Nathan R. Lindquist, MD; Baylor College of Medicine, TX; *Evaluation of cognitive function in hearing loss patients utilizing the BrainCheck™ computerized assessment tool*
- Elise Lippmann, MD; University of Illinois at Chicago; *Validating the use of a non-linguistic test across a broad clinical population*

RESEARCHER PROFILE

Spencer Smith, PhD, AuD

Assistant Professor
The University of Texas at Austin



SPENCER SMITH received his AuD and PhD from the University of Arizona. Upon finishing his doctoral training, he completed a postdoctoral fellowship at Northwestern University in the Auditory Neuroscience Lab. Smith's study, "Investigating the Relationship between Binaural Hearing and Speech-in-Noise Performance in Middle-Aged Listeners" was funded by a 2018 AHRF grant.

Dr. Smith explains, "Broadly, my research focuses on neural processes, from inner ear to cortex, involved in speech perception in noise. I employ objective (otoacoustic emission and electroencephalography) and behavioral techniques to study relationships between neurophysiological function and perception. My current focus is examining how binaural hearing supports speech-in-noise processing and how this skill changes as a function of age and/or experience."

How is your AHRF-funded study progressing?

With the support of AHRF, I was able to collect neurophysiologic and perceptual measurements of binaural hearing from young and middle-aged listeners while at Northwestern University. This work so far has revealed that reliable objective measures of binaural hearing acuity are possible using simple and complex stimuli such as speech. For the first time, this work has revealed that speech spatial release from masking can be measured neuro-physiologically.

What are you working on now?

I currently am supported by an NIH K01 grant to continue my work on binaural hearing. This grant would not have been possible if not for the support of the AHRF, as it provided me with seed funding and pilot data to scale the project up.

Is there something you've been particularly excited about with your work?

As an audiologist and hearing researcher, my hope is that my work improves clinical management of patients with hearing problems. I am excited that this project has clinical relevance and someday may have direct clinical applicability. We currently do not directly measure binaural hearing abilities in the clinic; having a quick and reliable objective measure of this skill would be valuable not only for addressing patient complaints of speech-in-noise perception but also for fitting and fine-tuning bilateral hearing aids or cochlear implants.

Where do you see yourself in the next five years?

I see my work on binaural hearing focusing more on patients with hearing loss who use hearing aids and/or cochlear implants. A critical problem that audiologists face is fitting these devices to maximize binaural cues, particularly for listeners who cannot provide actionable feedback (e.g., young children, patients with cognitive impairments or disabilities). My goal is to improve binaural hearing aid or cochlear implant fittings by providing audiologists with better tools to assay binaural hearing function.

RESEARCHER PROFILE

Enrique R. Perez, MD

University of Miami
Miller School of Medicine



ENRIQUE R. PEREZ, MD, is the current Neurotology Fellow in the Department of Otolaryngology Head and Neck Surgery at the University of Miami Miller School of Medicine. He completed his otolaryngology residency at the Mount Sinai Icahn School of Medicine in New York.

Dr. Perez received a grant from AHRF in 2018 to tackle a common challenge that ear surgeons face when removing cholesteatomas. A cholesteatoma is an abnormal, noncancerous skin growth that can develop in the middle section of the ear, behind the eardrum. If not surgically removed, these growths can destroy structures of the ear. Otolologists often have trouble removing the entire wall of a cholesteatoma cyst, and it often grows back. A “second look” surgery is common.

Study Progress

Starting with a rodent study, Perez is using AHRF funds to explore a way to reduce the need for multiple surgeries. He explains, “The idea is to come up with a new technique, using a fluorescent solution – Proflavine – as a marker that stains the skin-residual cholesteatoma.”

In the near future, Perez hopes surgeons can use this technique with patients. They would apply the Proflavine based on observation, then use an endoscope to find cholesteatoma cells highlighted with the biomarker. This process would make it easier for surgeons to remove all of the offending cells.

Looking Ahead

Perez plans to continue testing his surgical technique to remove cholesteatoma with different animal models. In addition, Perez recently published a study with Christine Dinh, MD, neurotologist from the University of Miami, in

which they studied a cell line of acoustic neuroma tumors compared to regular nerve cells by using sodium-fluorescein (SF) biomarkers. The purpose of that study was to investigate whether the tumor cells were picking up more fluorescence from the biomarker than normal cells. Building on the results, Perez will be working to develop an animal model of the tumor to see if they can further explore this hypothesis.

Goal: Clinical Applicability

Perez will be pursuing a full-time neurotology academic practice where he plans to continue the work he has started at the University of Miami Ear Institute. He noted, “What makes me most excited about any of the research I do is when I see any sort of down-the-line real, true clinical applicability. I like translational research the most because you can see how it eventually will improve outcomes for patients.”



Research team: E. Perez, S. Angeli, E. Bas

YOU CAN HELP

Who Supports AHRF?

Marvin Keeling Supports AHRF...

"My hearing loss started in 1971, with calcium buildup on the stapes bone in my ear. Now I have a 98% loss on the left side, and (with a hearing aid) 70% on the right. I also have tinnitus, with ringing in both ears 24-7. My friend and audiologist, Larry Hable, has identified hearing aid settings that trick my brain into thinking I'm hearing on both sides, which has been really helpful. I am so encouraged by the research that's being supported by the Foundation, and by the organization's strong leadership.



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You can support the vital work of hearing and balance innovations by donating online or mail your contribution in the enclosed postage-paid envelope. If you wish, you can designate your gift to honor someone dear to you.



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You can work with us to find hearing and balance solutions for generations to come. When you remember AHRF through a gift in your will, known as a bequest, you can ensure these cutting-edge research projects continue. You can choose to leave a specified sum of money or a percentage of your estate. Other forms of planned giving include securities, life insurance policies, or retirement plans. A qualified financial planner can guide your decision and help you consider tax consequences.

SUPPORT MENIERE'S DISEASE RESEARCH

Four years ago, the Foundation teamed up with Katie Mertz, founder of "run because." As her mother dealt with the debilitating effects of Meniere's disease, Katie embarked on a grassroots effort to raise awareness and research funding for this illness by aiming to run 51 half-marathons – one in each state plus DC – by age 50. This year she completed race #20 (Georgia), #21 (Oregon), and #22 (Minnesota) and has raised over \$30,000 in total. You can follow Katie's efforts and support her cause at www.facebook.com/runbecause.



COMBINED FEDERAL CAMPAIGN

The American Hearing Research Foundation is a designated charity for the Combined Federal Campaign (CFC) – the largest workplace giving campaign in the world that raises more than \$265 million each year. AHRF is on the CFC National List, number 10571.



CFC CHARITY #10571

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This list reflects donations received from August 1, 2018 through December 31, 2018.

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General Funds sustain the core programs central to the Foundation's mission. Donations to the General Fund also can be restricted to use for research into certain areas such as Meniere's disease.

There are several levels from which to choose:

- Chairman's Circle \$5,000 and above
- Research Supporter \$100 to \$999
- Research Champion \$1,000 to \$4,999
- Friends of the Foundation \$99 or under

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